

4.8 HYDROLOGY AND WATER QUALITY

This section describes the existing hydrological setting for the project site, including runoff, storm drainage, and flood control. Regulations and policies affecting local hydrology and water quality are described, impacts that may result from the project development are identified, and mitigation measures to reduce potential impacts are recommended where appropriate.

As described in Chapter 4, where appropriate and relevant, the analysis in this section identifies the differences in impacts that would be anticipated to occur with implementation of the project under 4 conditions: budgeted inmate capacity, maximum design inmate capacity, single level design option, and stacked design option. In the case of hydrology and water quality, the single level and stacked design option would result in only minor differences in the hydrologic characteristics of the site and, therefore, separate discussion of these minor differences is not provided. The number of inmates housed at SQSP would have no bearing on this issue and is not considered in this analysis.

4.8.1 EXISTING CONDITIONS

REGIONAL SETTING

The project site lies in a small watershed along the southwestern shore of Punta de Quentin in Marin County, California. The watershed drains an area approximately 111 acres in size, which includes 58 acres of SQSP land and 53 acres of undeveloped hillside areas north of the SQSP property. This watershed discharges to the mouth of Corte Madera Creek (downstream of the project site), which drains into San Francisco Bay. Annual precipitation in the project area is approximately 40 inches.

EXISTING DRAINAGE FACILITIES

The elevation of the project site ranges from approximately 5 to 65 feet above mean sea level (msl). In general, the project site is relatively flat (8 to 11 feet above msl) with the exception of Dairy Hill. Slopes on the project site (except Dairy Hill) range from 1 to 2%. Stormwater drains from the north to the south and is collected in an unlined drainage ditch before being discharged to San Francisco Bay via an outfall pipe located on the southern shoreline of the project site (Exhibit 4.8-1). This ditch is approximately 400 feet long and runs partially through the site.

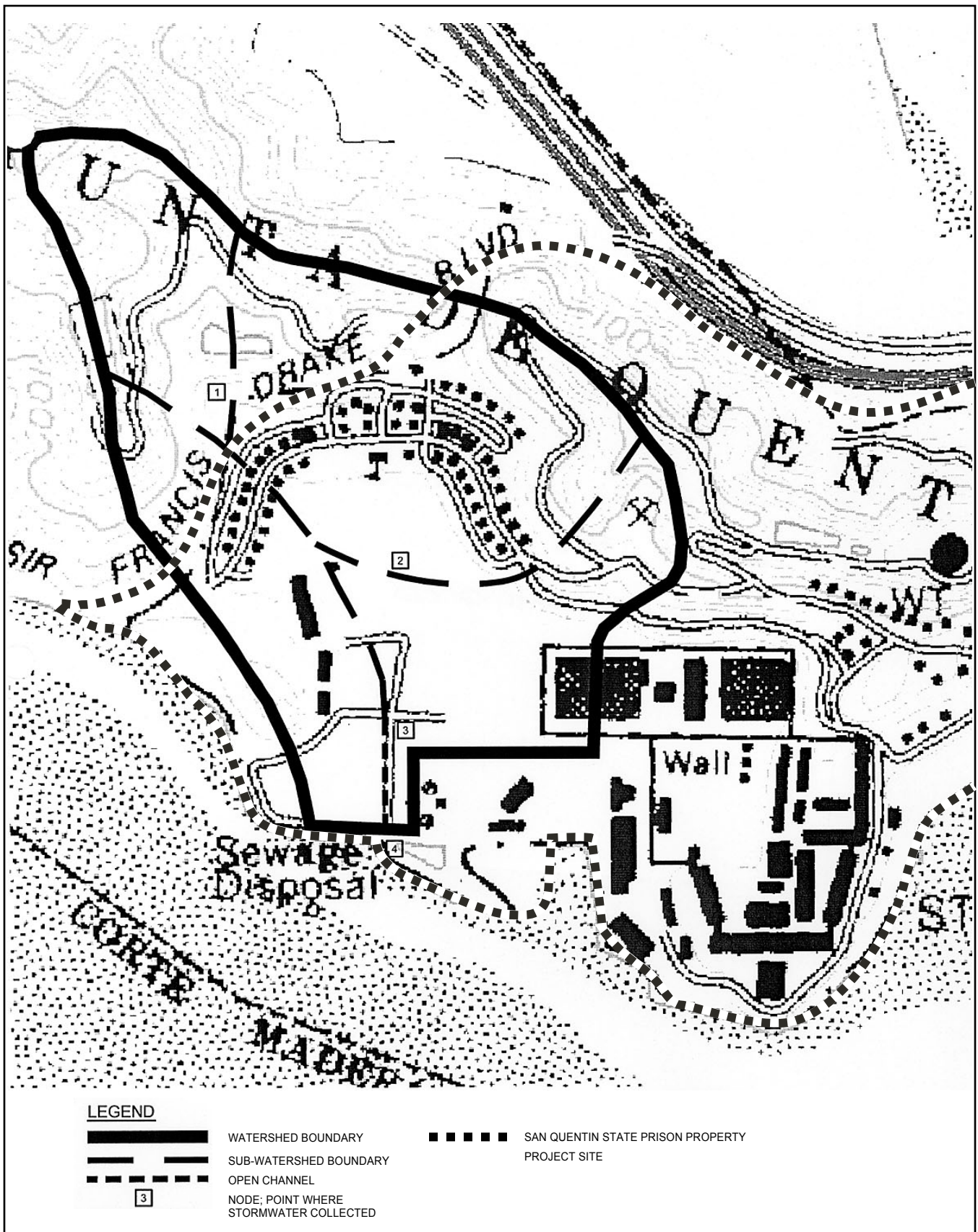
Existing stormwater flow rates for the project site were calculated for a 100-year storm event and would be approximately 110 cubic feet per second (cfs) prior to discharge in San Francisco Bay.

Offsite Hydrology

A large volume of the stormwater that drains through the project site originates offsite from areas north of Sir Francis Drake Boulevard. Runoff from the adjacent hillside areas flows through a temporary detention basin and then through a 4-foot by 3-foot box culvert at Sir Francis Drake Boulevard, where it enters SQSP and flows through the project site. During a 100-year rainfall event, the peak discharge from the foothills is approximately 35 cubic feet per second (cfs) at Sir Francis Drake Boulevard.

Onsite Hydrology and Water Quality

There are no creeks or streams flowing through the project site. The nearest water body is San Francisco Bay located immediately south of the project and Corte Madera Creek, located approximately one mile to the west.



Source: Winzler & Kelly 2004

Local Watershed

EXHIBIT 4.8-1

Various combinations of overland flow, open channels, and culverts convey stormwater to 3 concentration points within the project site. Runoff from adjacent hillside areas flows to the northeastern corner of the project site near existing residences. From there stormwater combines with stormwater flows from the northwestern portion (i.e., Dairy Hill) of the project site and is conveyed to a culvert that combines with stormwater from the lower portion of the project site. Finally, the stormwater is conveyed to the onsite drainage ditch and discharged to San Francisco Bay.

The quality of surface water on the project site is affected by past and current land uses at the site and in the surrounding watershed. Currently, there are no stormwater treatment facilities (i.e., oil/water separators, drainage swales) or best management practices (BMPs) employed at the project site.

Existing Flooding and Tidal Conditions

The most recent Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Marin County (Community Panel Number 060173 0455 A), indicates that the project site lies outside a delineated floodplain with a flood elevation of 6 feet national Geodetic Vertical Datum (NGVD).

4.8.2 REGULATORY BACKGROUND

Numerous federal, state, and regional laws, regulations, and policies define the framework for regulating water quality in the project site. Water quality in California is regulated through the federal Clean Water Act (CWA), which is managed by the U.S. Environmental Protection Agency (U.S. EPA), with implementation delegated to the State Water Resources Control Board (SWRCB) and a number of Regional Water Quality Control Boards (RWQCB). Water quality at the site is primarily regulated by the San Francisco Bay RWQCB. The following provides a description of the water quality requirements applicable to the project

Federal

Clean Water Act

The CWA consists of the Federal Water Pollution Control Act of 1972 and subsequent amendments, and establishes the basic structure for regulation of discharges of pollutants to surface waters in the United States. It authorizes the U.S. EPA to set effluent limits for discharges and requires the U.S. EPA to set water quality standards for contaminants in surface waters.

The CWA established a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) Program. The CWA requires dischargers to obtain a permit that establishes effluent limits and specifies monitoring and reporting requirements.

State of California

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969, which became Division 7 of the California Water Code, authorized the SWRCB to provide comprehensive protection for California's waters through water allocation and water quality protection. The SWRCB implements the requirement of CWA Section 303, indicating that water quality standards have to be set for certain waters by adopting water quality control plans under the Porter-Cologne Act. The Porter-Cologne Act established the responsibilities and authorities of the nine RWQCBs, which include preparing water quality plans for areas in the region (Basin Plans), identifying water quality objectives, and issuing NPDES permits and Waste Discharge Requirements (WDRs). Water quality objectives are defined as limits or levels of water quality

constituents and characteristics established for reasonable protection of beneficial uses or prevention of nuisance. The Porter-Cologne Act was later amended to provide the authority delegated from EPA to issue NPDES permits.

Regional

San Francisco Regional Water Quality Control Board

The San Francisco Bay RWQCB developed and maintains the Water Quality Control Plan for the San Francisco Bay Basin (San Francisco Bay RWQCB 1995). This plan includes objectives for the quality of surface waters in the region. The plan contains numerical and narrative objectives that define the level of water quality that should be maintained.

The San Francisco Bay RWQCB seeks to reasonably control activities that would adversely affect beneficial uses of the waters in the region. To achieve the goals of the Water Quality Control Plan, the RWQCB, in collaboration with individual counties and cities, has developed regulatory programs to manage and reduce urban runoff pollutants. The most recent regulations derive from the 1999 U.S. EPA regulations under the CWA that require the SWRCB to issue NPDES permits for stormwater discharge. To comply with the RWQCB requirements and receive an NPDES permit for its stormwater system, each county and city must develop a compliance program. Part of this compliance program includes regulation of new development or redevelopment.

Project applicants must submit a Notice of Intent (NOI) to the SWRCB to be covered by the Construction Activities Stormwater General Permit before they may start construction on sites that are greater than 1 acre. The General Permit requires the implementation of a Stormwater Pollution Prevention Plan (SWPPP), which must be prepared before construction begins. The SWPPP must include:

- specifications for BMPs to be implemented during project construction to minimize the potential for accidental releases of pollutants, and to minimize runoff from the construction areas, including storage and maintenance areas and building materials handling areas.
- a description of a plan for communicating appropriate work practices to field workers.
- a plan for monitoring, inspecting, and reporting any release of hazardous materials.
- specifications for BMPs that will be incorporated into the project itself to minimize runoff of pollutants after the project is been completed.
- a description of a plan to monitor stormwater runoff after the project has been completed.

County of Marin

Marin County Stormwater Pollution Prevention Program (MCSPPP)

MCSPPP is a joint project of the County of Marin, the cities of Belvedere, Larkspur, Mill Valley, Novato, San Rafael, and Sausalito, and the towns of Corte Madera, Fairfax, Ross, San Anselmo, and Tiburon. Each municipality has adopted a stormwater ordinance to clarify its authority to control what is discharged to the municipally owned storm drain system. In particular, the ordinance: prohibits the discharge of nonstormwater discharges to storm drains, and requires that the discharge of pollutants in stormwater be minimized by implementing best management practices (BMPs).

Each municipality pursues its own local stormwater pollution prevention activities and also contributes financial and in-kind support to the MCSPPP. The MCSPPP conducts activities that benefit all twelve MCSPPP agencies and performs administrative, budgeting, and planning activities. Because SQSP is a State-owned facility, it is not subject to the MCSPPP.

4.8.3 ENVIRONMENTAL IMPACTS OF THE PROJECT

THRESHOLDS OF SIGNIFICANCE

The project would have a significant impact on the environment if it would:

- violate any water quality standards or waste discharge requirements;
- substantially alter the existing drainage pattern of the site in a manner that would result in substantial erosion or siltation on- or offsite;
- substantially alter the existing drainage pattern of the site or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or offsite;
- create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems;
- create or contribute runoff which would be an additional source of polluted runoff; or
- otherwise substantially degrade water quality.

STORM DRAINAGE IMPACTS

Development of the project (under either design option) would pave and cover a majority of the site with roadways, buildings, parking areas and minimal landscaping. The project would increase the volume of stormwater that is generated onsite compared to existing conditions. CDC proposes to construct new stormwater drainage facilities that would be adequately sized to accommodate the project's peak stormwater flows. These facilities would include a series of drains, pipes, and culverts that would convey collected stormwater to the existing outfall structure located along the shoreline of San Francisco Bay (Exhibit 4.8-2a through 4.8-2d). No new discharge points to San Francisco Bay are proposed. However, some minor rock slope protection (i.e., rip-rap) would be provided at the outfall to dissipate the energy of the stormwater flows prior to entering San Francisco Bay.

Because the project would construct new stormwater drainage facilities that would adequately accommodate and convey project-related stormwater volumes, the project would have less-than-significant storm drainage impacts (Impact 4.8-a).

FLOODING AND TIDAL IMPACTS

The project site is not located within the 100-year or 500-year floodplain. The proposed facilities would not block or redirect stormwater flows onsite such that it would result in substantial flooding on or offsite. Further, CDC proposes to install a new stormwater drainage system that would adequately accommodate and convey stormwater generated on the site to San Francisco Bay.

Because the project site is not located within a 100-year or 500-year floodplain under all tidal conditions, and adequate storm drainage facilities would be provided at the site, the project would not increase the potential for flooding on or off the project site. This would be a less-than-significant flooding impact (Impact 4.8-b).

WATER QUALITY IMPACTS

The project (under either development option) would result in surface disturbance through ground scraping, grading, trenching, and compaction associated with conventional development activities. Existing vegetation would be removed, increasing the potential for erosion. Although the project site is relatively flat and the potential for erosion is considered low, peak stormwater runoff could result in short-term sheet erosion in areas of exposed or stockpiled soils. Construction activities and proposed land uses (i.e., roadways, parking areas) typically result in the generation of atmospheric pollution, tire-wear residues, petroleum products, and oil and grease, which would be transferred to roadway on the project site. These constituents could enter the storm drainage system and could adversely affect the water quality of San Francisco Bay (discharge point).

Project construction and operation activities could result in onsite erosion and degradation of the water quality of stormwater that enters San Francisco Bay. This would be a potentially significant water quality impact (Impact 4.8-c).

4.8.4 PROPOSED MITIGATION MEASURES

LESS-THAN-SIGNIFICANT IMPACTS

The following impacts were identified as less than significant, and therefore no mitigation is required:

4.8-a: Storm Drainage Impacts

4.8-b: Flooding and Tidal Impacts

SIGNIFICANT IMPACTS THAT CAN BE MITIGATED TO A LESS-THAN-SIGNIFICANT LEVEL

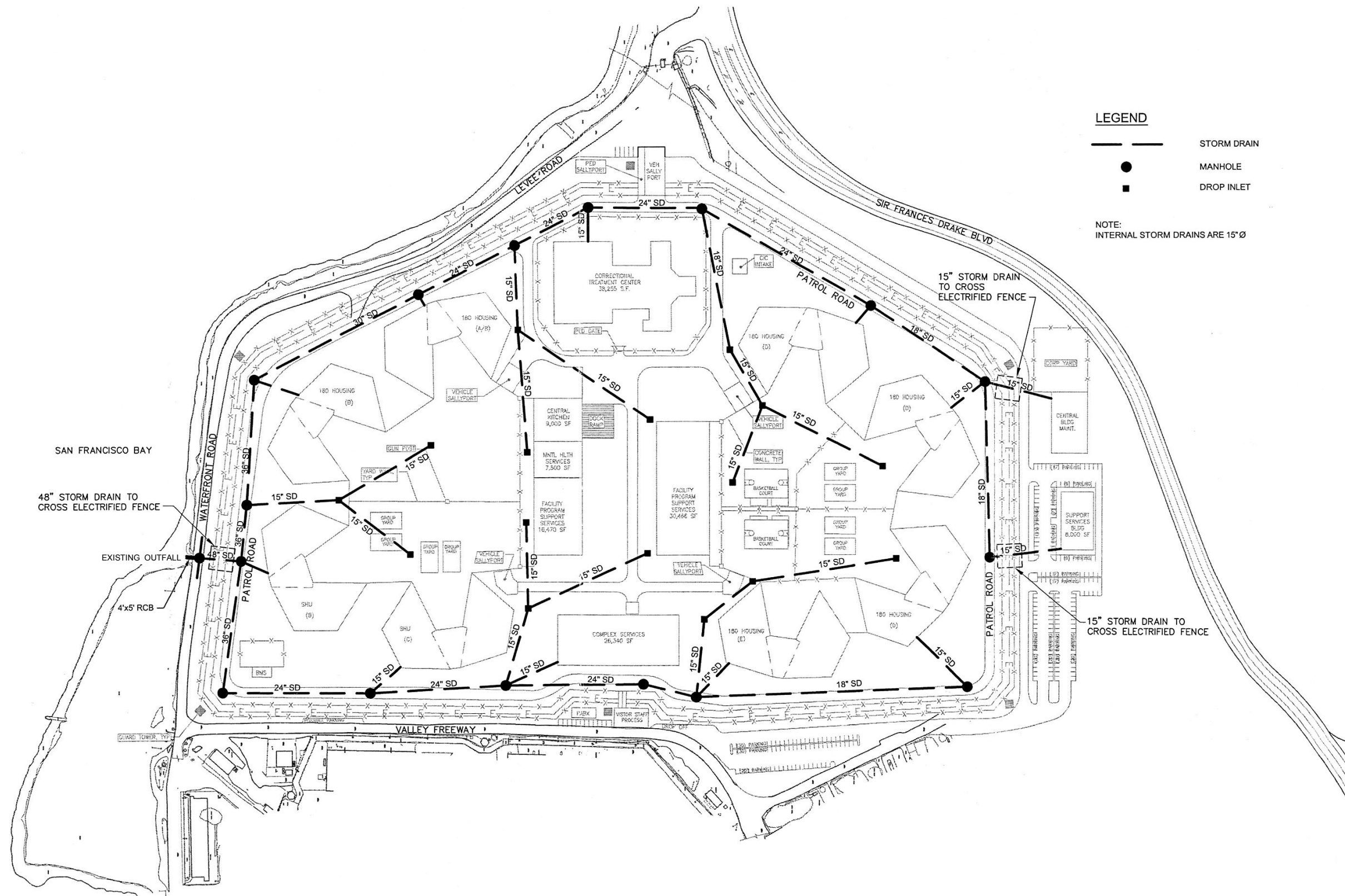
The following impact was identified as potentially significant. Mitigation is available to reduce this impact to a less-than-significant level and is recommended below:

4.8-c: Water Quality Impacts

CDC will prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction and life of the project. The SWPPP will act as the overall program document to provide measures to mitigate significant water quality impacts associated with implementation of the project. The SWPPP will include specific and detailed Best Management Practices (BMPs) required to mitigate significant construction-related pollutants. These controls will include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP will specify properly designed centralized storage areas that keep these materials out of the rain.

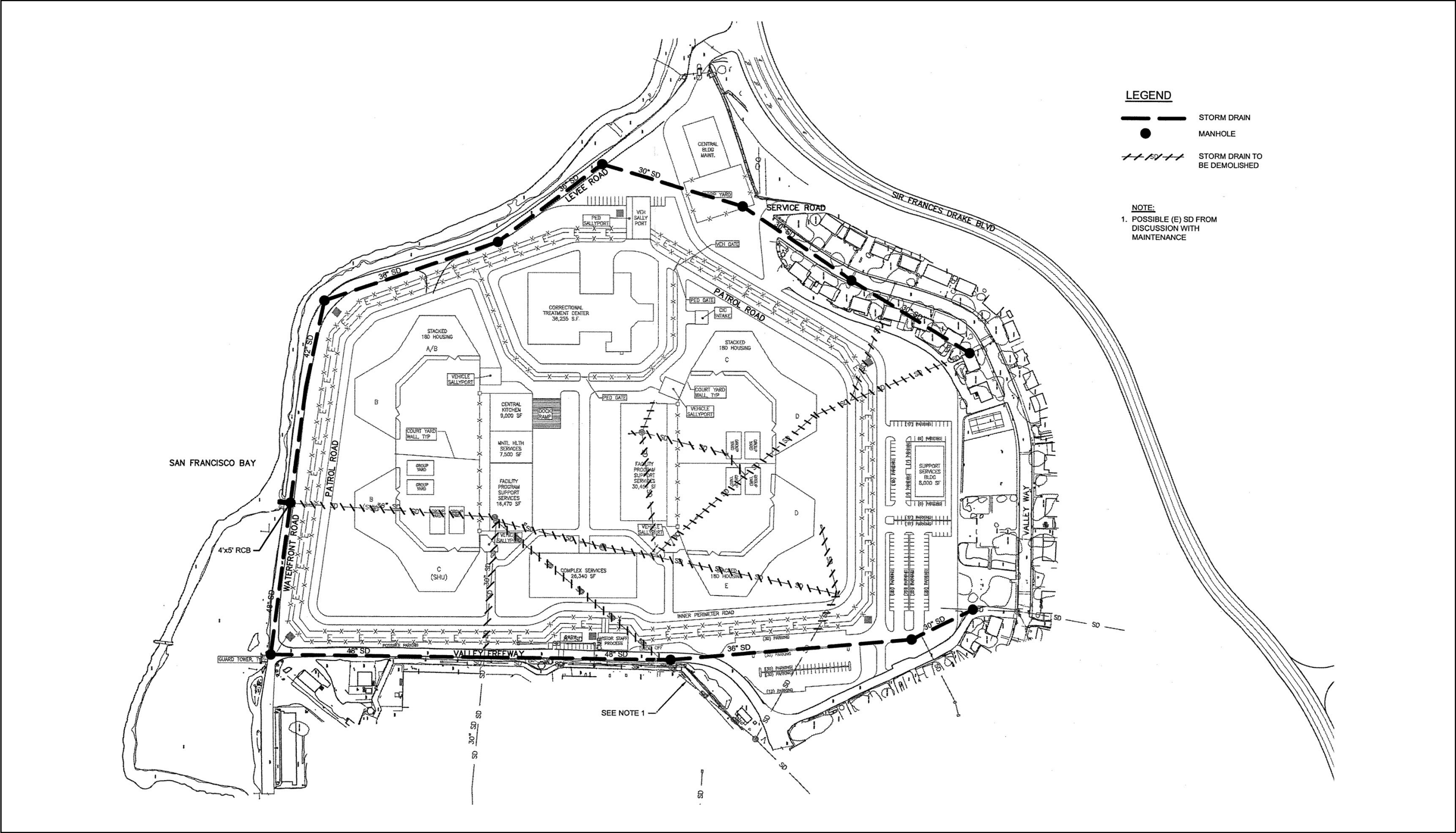
The SWPPP will specify a monitoring program to be implemented by the construction site supervisor, and must include both dry and wet weather inspections. State personnel will conduct regular inspections to ensure compliance with the SWPPP. BMPs designed to reduce erosion of exposed soil may include, but are not limited to: soils stabilization controls, water for dust control, perimeter silt fences, placement of hay bales, and sediment basins. The potential for erosion is generally increased when grading occurs during the rainy season because disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected will focus on erosion control, to keep sediment on the site.

Implementation of this mitigation measure would reduce this impact to a less-than-significant level.



Source: Winzler & Kelly 2004

Proposed Storm Drainage Facilities – Single Level Design Option (Internal System)



Source: Winzler & Kelly 2004

Proposed Storm Drainage Facilities – Stacked Design Option (External System)

San Quentin State Prison Condemned Inmate Complex Project Draft EIR
 P 3T053.01 09/04